

REMARKS

The present amendment is prepared in accordance with the new revised requirements of 37 C.F.R. § 1.121. A complete listing of all the claims in the application is shown above showing the status of each claim. For current amendments, inserted material is underlined and deleted material has a line therethrough.

Applicants appreciate the thoroughness with which the Examiner has examined the above-identified application. Reconsideration is requested in view of the amendments above and the remarks below.

Claims 1-3, 6, 7, 9-15, 19 and 21 have been amended.

Claims 30 and 31 have been added.

Claims 18, 20 and 23-29 have been canceled.

No new matter has been added.

Election Restrictions

Since the restriction requirement has been made final, applicants have canceled non-elected claims 23-29. No new matter has been added.

Allowable Subject Matter

It is submitted that claims 15-17, 19 and 21-22 are in a condition for allowance for the below following reasons:

The Examiner has indicated that claims 20 and 21 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office Action and to include all of the limitations of the base claim and any intervening claims. Accordingly, applicant canceled claim 20 and intervening claim 18, and included the

limitations thereof into independent claim 15. It is submitted that independent claim 15 overcomes the rejections under 35 U.S.C. 112, 2nd paragraph, and as such, is in a condition for allowance. Applicant submits that claims 16, 17, 19, 21 and 22, dependent thereon claim 15, are also in a condition for allowance.

No new matter has been added.

Claim Rejections - 35 USC § 112

The Examiner has rejected claims 18-21 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Examiner has rejected claims 18 and 21 as containing limitations that do not have antecedent basis. Applicant submits that the limitations of claim 18 are now included in allowable claim 15, and the recitation of "a first peelable support film" has been corrected for. Also, the recitation of "said stacked layers" in claim 21, line 5, has been deleted. It is submitted that the rejections under 35 U.S.C. 112, second paragraph, are now overcome.

No new matter has been added.

Claim Rejections - 35 USC § 103

In view of claims 15-17, 19 and 21-22 being in a condition for allowance, originally filed claims 1-14 remain pending and are rejected over a number of references as discussed further below. Newly added claims 30 and 31 are also pending.

As is currently recited, amended independent claim 1 is directed to a method of forming openings in a substrate. The method includes providing a substrate having a first surface and a second surface, and attaching a first removable support film to the first

surface of the substrate. At least one opening is formed in the substrate by entering the first removable support film and traversing through the substrate, exiting the substrate on the second surface. A second removable support film is attached to the first removable support film using an interface layer. In so doing, sufficient pressure is applied so as to extrude a portion of the interface layer into the at least one opening within the first removable support film. In this method, the first removable support film prevents damage to the substrate by constraining movement thereof during formation of the at least one opening.

Amended independent claim 6 is directed to a method of processing greensheets for use as microelectronic substrates. The method includes providing a greensheet having a first surface and a second surface, and attaching a first removable support film to the first surface of such greensheet. A plurality of openings are formed in the greensheet by sequentially traversing through the first removable support film, through the greensheet and exiting the greensheet at the second surface thereof. An interface layer is deposited on a second removable support film, and this second film is attached to the first removable support film using the interface layer. In so doing, sufficient pressure is applied so as to extrude a portion of the interface layer into the plurality of openings within the first removable support film. Similarly, in this method, the first removable support film constrains movement of the greensheet to prevent damage thereto during formation of the plurality of openings.

New dependent claims 30 and 31 clarify that the first and second removable support films of claims 1 and 6 are, respectively, first and second peelable support films.

In the first rejections, the Examiner has rejected claims 1, 4-6, 8-11, and 13 under 35 U.S.C. 102(b) as anticipated by either JP 2-136204 or JP 6-275953.

As disclosed in the Abstract of JP 2-136204 and recognized by the Examiner, JP 2-136204 only discloses an aluminum foil 2 of 10-20 μm thickness bonded to a ceramic greensheet 1. Similarly, JP 6-275953 only discloses a plastic film 1 on a ceramic greensheet 5. Neither reference discloses a second removable support film attached to a first removable support film having openings therein as is currently claimed. As such, the pending claims include limitations not disclosed by either JP 2-136204 or JP 6-275953, such that the claims are not anticipated by or obvious over JP 2-136204 or JP 6-275953.

The Examiner has also rejected claims 1, 2, 4-13 and 15-17 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Inasaka U. S. Patent No. 5,271,150. Applicants disagree. As recognized by the Examiner in the above office action, U. S. Patent No. 5,271,150 to Inasaka merely discloses a ceramic greensheet 1 having a carrier film 2 on a first surface thereof and an organic resin film 3 on a second, opposite surface of the greensheet 1. It does not disclose, contemplate or even suggest providing a first removable support film on a first surface of a substrate, forming openings traversing through the support film and substrate, and then attaching a second removable support film to the first removable support film, as is currently claimed. Accordingly, it is submitted that claims 1, 2, 4-13 and 15-17 are neither anticipated by, nor rendered obvious over, U. S. Patent No. 5,271,150 to Inasaka.

Claim 3 has been rejected to under 35 U.S.C. 103(a) as being unpatentable over either JP 6-275953 or Inasaka as applied to claim 1 above, and further in view of JP

7 30252 Abstract. However, as disclosed in the Abstract, JP 7-030252 merely discloses that a plastic film 2 covers a greensheet 14. Similarly, JP 7-030252 does not disclose, contemplate or even suggest attaching a second removable film to a first removable film having openings therein, as is currently claimed. As such, it does not overcome the deficiencies of either JP 6-275953 or Inasaka U. S. Patent No. 5,271,150, alone or in combination, as are discussed above, such that claim 3 is patentable over both JP 6-275953 in view of JP 7 30252 and Inasaka in view of JP 7 30252.

The Examiner has also rejected claims 1, 2, 4-8, 10, 11, 13 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 4-102396 Abstract. JP 4-102396 only discloses a green sheet 2 with a film 1 disposed above the green sheet with adhesive. The pending claims include limitations not disclosed by this reference since JP 4-102396 does not disclose attaching a second removable support film to a first removable support film. The claims are patentable over JP 4-102396.

Claims 1, 4-6, 8, 10, 11, 13 have been rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 1-202405 Abstract. Yet, this reference also only discloses a green sheet 1 with a carrier film 2 compressed by presses 5,6. It does not disclose attaching a second removable support film to a first removable support film, such that it does not anticipate or render obvious the present invention as is currently claimed.

The Examiner has rejected claims 6, 8 and 11-13 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 2-310996 Abstract. This reference only discloses a green sheet 1 having an organic binder film

thereon. It does not disclose or even contemplate a second removable support film attached to a first removable support film having openings therein as is currently claimed. It is submitted that the claims of the present invention include limitations not disclosed or contemplate by JP 2-310996, such that the claims are neither anticipated by nor rendered obvious over JP 2-310996.

Still further, the Examiner has rejected claims 14 and 22 under 35 U.S.C. 103(a) as being unpatentable over JP 1-202405 Abstract as applied to claims 6 and 15 above, and further in view of Anbo et al. U. S. Patent No. 6,413,340. However, U. S. Patent No. 6,413,340 to Anbo et al. only discloses a substrate film 1 on a green sheet 2, which is provided with a peel-facilitating pattern 2 and a snap groove 4. (Col. 5, ll. 12-15, Fig. 3.) It does not disclose, contemplate or suggest a second removable support film attached to a first removable support film having openings therein, as is claimed. In view of the same, applicants submit that the Anbo et al. patent does not overcome the deficiencies of JP 1-202405, and as such, claims 14 and 22 are patentable over JP 1-202405 Abstract as applied to claims 6 and 15 above, and further in view of Anbo et al. U. S. Patent No. 6,413,340.

Lastly, the Examiner has rejected claims 1, 4-6, 8-11, 13, 15, 16, 18 and 19 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Humenik et al. U. S. Patent No. 6,045,714.

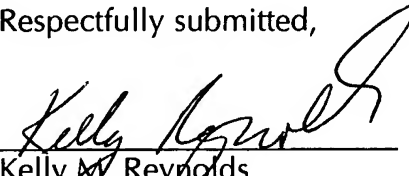
Humenik et al. discloses an in situ mask 12 on a greensheet 10. A via opening is punched through the mask and greensheet, and then a backing member 14 is applied over the mask 12 and the via filled with a conductive paste. (Col. 4, ll. 23-30, Figs. 1 and 2.)

Humenik et al. does not disclose, contemplate or suggest attaching a first removable support film to a greensheet, forming openings through the first removable support film and greensheet, and then attaching second removable support film to a first removable support film using an interface layer such that a portion of the interface layer is extruded into the opening within the first removable support film, as is currently claimed. Accordingly, applicants submit that the present invention includes limitations not disclosed or suggested by Humenik et al., and as such, the present invention is neither anticipated by nor rendered obvious over Humenik et al. U. S. Patent No. 6,045,714.

It is for the foregoing reasons that applicants submit that the present invention is neither anticipated by, nor obvious over, the cited references in the above-identified office action.

Applicants submit that the application has now been brought into a condition where allowance of the case is proper. Reconsideration and issuance of a Notice of Allowance are respectfully solicited. Should the Examiner not find the claims to be allowable, Applicants' attorney respectfully requests that the Examiner call the undersigned to clarify any issue and/or to place the case in condition for allowance.

Respectfully submitted,



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